within two miles northwest of the regular observing station at Anniston, Ala. At that point there is a negro settlement of one-story houses, called "Camp Shipp," occupying the northerly and easterly ridges and the bottom of a small vale between hills to west, north, and east thereof. This vale is from forty to sixty rods wide between the crests of the ridges from east to west, and eighty rods long from north to south. It opens towards the southwest upon a tract of gently rolling farm land bare for a half mile or more to both west and south, while the enclosing ridges are depressed slightly at the northeast corner of the little vale. In the lowland along the base of the westerly wooded slopes the houses were not injured. Others, however, slightly farther to eastward were moved four or five feet from their foundations, carrying with them large brick-fireplace chimneys built up from the ground. Passing northeastward, the tornado unroofed buildings here and there for six miles or farther.

One man, living next east of the Wilson house, was just returning from work, and was on the Buttermilk Road only ten rods east of the tornado vortex when it struck the Wilson house and crossed the road in front of him. He was running directly into the vortex to get to his home, and to get out of the rain, which came down with great intensity and suddenness close to the storm center. The tornado approached from the south with a roar, "like a freight train crossing a bridge," and passed to northeast out of hearing. He was at first blown across the road to the fence by a violent blast of wind from the south. This was followed almost immediately by violent atmospheric surges from the west, which continued for some time. Between these blasts he rose from the ground, ran across to the south side of the road and clung to his fence, working his way along a couple of rods to the gateway and to the verandah a couple of steps back, where he stood for some minutes afraid to open the doorway through fear that his house might be unroofed. He observed no hail. There was much thunder and lightning. Owing to the darkness and his exciting experiences he did not observe whether there was a funnel cloud. No one was injured.

At this station, two miles to the southeast, the highest wind velocity was 31 miles from the southwest at 2:48 to 2:53 a. m. At this time the reduced barometer reading, which had been 29.78 inches for two hours, rose ten hundredths of an inch in fifteen minutes. The temperature rose slowly from 63° at 11 p. m. on the 12th to 66° at 2:40 a. m. on the 13th, and then fell to 53° in fifteen minutes. Precipitation had been very light, barely sprinkling or misting from 3:45 p. m. on the 12th till 2:40 a. m. on the 13th, but fell at an excessive rate from 2:40 to 2:46 a. m., heavy till 3:30, and light till 7:45 a. m. Moderate to brisk southeast winds had prevailed for two days, but with the passage of the vortex the winds changed from southeast at 2:47 a. m. to south, southwest, and west in five minutes and to northwest in nineteen minutes, diminishing rapidly thereafter to light after 3:30 a. m.

During the passage of this tornado up the little vale between the hills of Camp Shipp, its path for eighty rods was due north. Along this path the wind effects indicate that the vortex was characterized by two violent wind forces at right angles to each other, one from the south on the right of the vortex, and the other from the west just in rear of the vortex, both of them surging in violent waves and performing the destructive work that levelled trees and buildings. It would thus appear that the southeast wind that prevails before tornadic storms feeds into the front of the tornadic vortex in a steady stream that does no destructive work, while the northwest wind that prevails after the tornado has passed by feeds into the vortex in violent surging, destructive waves, as a west wind just in rear, as a south wind just on the right of the vortex, and as an east wind on the immediate vortex front. Combining here with the southeast wind on its right, the two rise into the vortex as a surging easterly lifting wind of greatly increased force by virtue of the doubling up of the two inflowing wind streams.

DESTRUCTIVE STORMS IN ALABAMA.

By E. C. HORTON, Assistant Observer. Dated Montgomery, Ala., June 22, 1909.

April, 1909.

A violent windstorm occurred on April 30, 1909, in Calhoun County, between 4:30 and 5 p. m. The most damage was caused at Piedmont where the storm appeared as "a rapidly moving, black, low-hanging cloud" with a very high wind from the southwest, rather than a funnel-shaped cloud with a cyclonic whirl. The path of destruction was about one hundred yards wide, but the damage almost entirely confined to Piedmont. Property loss was about $4,000, but no person seriously injured. The resident observer reports that the local topography renders Piedmont liable to high winds over this same path.

About 8 p. m. of the same day a typical tornado passed within one mile of Delta, Clay County, having started four miles west of Pyriton in what is known as Shinbone Valley. The path was ten miles long, toward the northeast, and one-fourth to three-fourths mile wide. Owing to the sparsely settled condition of the country the number of injured persons was but seven, and the property loss did not exceed $6,000.

May, 1909.

A tornado occurred in Escambia County, Ala., on May 25, 1909. The storm seems to have been at its worst about 3 a. m. Its path of destruction has been estimated from one-half to 3 miles in width, and about 7 miles long. It seems probable, however, that it came from much farther to the northwest, violent windstorms having been reported the same night or the preceding afternoon at Eutaw, Greene County, and Demopolis, Marengo County; also over a portion of the country lying between Myrtlewood and Linden, Marengo County, as well as at Jones Mill, Monroe County. These places lie in an irregular line northwest and southeast. The places of greatest damage appear to have been Herrington, where the school house was demolished; Hammac, where a church and several houses were blown from their foundations; and the vicinity of Pollard, where much destruction to timber was wrought.

The storm had the usual funnel-shape cloud in at least a part of its course. No loss of life or serious injury to persons was reported from any points in the affected district. The storm was last heard of at Bradley, on the eastern border of Escambia County. At this point the rains, that were heavy throughout the affected district, became a cloudburst.

An accurate estimate of the property loss is not obtainable, but must have been not less than $10,000 or $15,000.

A tornado traversed a considerable portion of Madison and Morgan Counties, in north Alabama, about 5 p. m., May 30, 1909. The storm first struck Cedar Lake, a suburb of Decatur, Ala., where a large congregation were assembled at the colored church. The church was lifted from its foundation and turned completely around. No one was injured, except by being bruised in the mad scramble to get out of the building. Many trees were uprooted and houses were unroofed, and the accompanying rainfall was torrential. At Triana, east of Decatur, several residences were blown down, and both churches badly damaged. Considerable damage to trees, roofs, wires, etc., was done at Huntsville, although the severest part of the storm appears to have passed some distance from that place. At Ryland a church and some other property was damaged. The tornado was last reported at Brownsboro. There a church was lifted from its foundation and lowered to the ground without serious damage to the building. The greatest loss seems to have been to orchards, groves, and fields. While a great many buildings were demolished or damaged, they were

generally of an inexpensive kind, or else the damage was of a minor nature.

The tornado travelled a distance of about 40 miles, and its track was about one-fourth of a mile wide. No deaths or serious injuries resulted.

DESTRUCTIVE STORMS IN MICHIGAN.

By C. F. SCHNEIDER, Section Director. Dated May 29, 1909.

During the afternoon of Saturday, May 15, 1909, thunderstorms with high winds were general throughout southern Michigan, and a large amount of damage was done to buildings and trees. About 3:15 p. m. a destructive windstorm occurred at Fowlerville, Livingston County, and over the surrounding country for a distance of 2 to 4 miles. It is estimated that about two hundred and fifty buildings were more or less damaged, many being unroofed and several demolished. The total damage is estimated at about $50,000.

Three persons were injured by flying débris or being thrown to the ground by the wind, and as a result of fright one woman died from heart disease. About twenty-five families were rendered homeless.

The path of greatest destruction was about six rods wide and extended from southwest to northeast. One observer reports that the storm had a well defined funnel-shaped cloud, but the fact that uprooted trees lay in the same direction on all sides of its path, as reported by the same observer, would indicate that the storm was not a true tornado with rotary winds.

On the same date severe thunderstorms visited other points in southern Michigan, causing much damage to fruit trees and other property. At Cadillac one person was struck by lightning, and the power plant disabled at Flint. At Albion a tall chimney was blown down upon a church, causing $1,000 damage but no loss of life. At Eaton Rapids and vicinity the wind caused damage to the extent of $1,000.

CORRIGENDA.

In the MONTHLY WEATHER REVIEW, March, 1909, p. 103, col. 2. line 20 from the bottom, for "Berlin. 1875" read "Berlin, 1879;" on p. 104, col. 1, last entry, for "Lavel" read "Laval," in col. 2, line 2 from the bottom, for "1830" read "1880;" on p. 107, col. 1, for "Houdailles" read "Houdaille;" on p. 109. col. 1, for "Greeley" read "Greely."

THE WEATHER OF THE MONTH.

By Mr. P. C. DAY, Acting Chief, Climatological Division.

PRESSURE AND WINDS.

The distribution of the mean atmospheric pressure for May, 1909, over the United States and Canada is graphically shown in Chart VI, and the average values and departures from the normal are shown for each station in Tables I and III.

Barometric depressions of wide extent, central in the upper and lower Mississippi valleys during the closing days of April, moved, the former into Canada and the latter to the Atlantic seaboard, during the 1st and 2d.

Considerable depressions also covered the eastern districts from the 8th to 10th and again from the 25th to 27th, aside from which no depression of marked extent crossed the United States, although the month was one of generally low barometric pressure from the Rocky Mountains eastward, the departure from the normal averaging about −.05 inch over nearly all the above-named region. From the Rocky Mountain districts westward to the Pacific the pressure was comparatively high, the departure above the normal increasing to from +.05 to +.07 inch on the coasts of Washington and Oregon.

From April to May the mean pressure decreased in all portions of the United States and Canada, the amount ranging uniformly from about −.08 to −.14 inch.

Southerly winds were dominant over the Gulf States and Mississippi Valley, while under the influence of comparatively high barometric pressure on the Pacific coast the winds over the Plateau and Rocky Mountain districts were northwesterly and westerly.

Compared with the normal there was a general increase in the wind velocity in practically all districts, a few points only in the southern portion of the great Plains and in the Middle Plateau region showing wind movement slightly less than the average.

TEMPERATURE.

Following the low areas covering the eastern districts at the beginning of the month an extensive area of cold weather overspread the central valleys, moving eastward and southward during the 2d and 3d. Freezing temperatures and frosts occurred from central Texas northeastward to the lower Lakes with snow in the upper Lake region. During the following few days the temperature rose rapidly over all eastern districts, but cool weather continued over the northwestern and Mountain districts during most of the first decade. Cold weather again overspread the Mississippi Valley and eastern districts from the 10th to 13th, with frost in the Lake region, upper Ohio Valley, and in the interior and mountain portions of the Middle and North Atlantic States.

Generally cool weather was the rule during the 2d and 3d decades of the month, and as a whole the mean temperature for the month was below the normal in practically all portions of the United States, except over southern Florida and at a few points along the immediate Atlantic coast. The month was unusually cold over the Rocky Mountain and Plateau regions, and at its close the advance of the season had been seriously delayed thereby.

Maximum temperatures were not unusually high at any period during the month. They ranged from 80° to 90° over the eastern districts; from 90° to 97° over the central and southern portions of the Great Plains; and from 100° to 106° in the interior and lower valleys of Arizona and California.

Minimum temperatures were in many districts unusually low, especially over the regions west of the Rocky Mountains where severe frosts were of frequent occurrence, doing considerable damage to fruits, etc., but much less than would have been the case had not the development of vegetation been retarded by the continued cold weather preceding.

PRECIPITATION.

Rain in sufficient quantities and well distributed during the month occurred in all districts east of the Rocky Mountains, except over portions of the Middle Atlantic States, where there was a general lack of precipitation from the latter part of April until late in May. Over the greater part of Texas copious showers occurred, greatly relieving a serious drought that had prevailed over that State during the preceding months and which had given much concern to the cotton interests. West of the Rocky Mountains the month was one of generally deficient rainfall, especially so in portions of New Mexico, California, and the central portions of the Plateau region.

Rainfall was much above the normal amount over large sections of the middle Gulf States. In portions of central Mississippi and the adjoining districts of Alabama, Louisiana, and Arkansas, the precipitation during the latter part of the month was in some cases the heaviest recorded at the respective